

CLAIMS

What is claimed is:

1. An inventory forecasting system, comprising:
 - an input receptive of a product total and a probability of product failure over a predetermined amount of time;
 - a gross material plan determination module adapted to determine a gross material plan for a lifetime based on the product total and the probability of product failure; and
 - a development module adapted to develop at least one of:
 - (a) a releasing plan devised to accomplish automatic release of products to a supply base based on volume assumptions determined as a function of the gross material plan;
 - (b) a customer quote based on an individual product price determined as a function of the gross material plan; and
 - (c) an income statement based on the individual product price and a product volume determined as a function of the gross material plan.
2. The system of claim 1, further comprising a datastore containing at least one actuarial table recording statistically averaged probabilities of product failure over the predetermined amount of time, and organized according to at least one of product composition, product location, product sub-system, and product function.

3. The system of claim 2, further comprising at least one actuarial table recording statistically averaged probabilities of vehicle part failure, wherein the statistically averaged probabilities reflect historical data, crash data, and material shelf life, and the probabilities are organized as a function of vehicle part composition, vehicle part location, vehicle part subsystem, and vehicle part function.

4. The system of claim 1, further comprising an inventory cost determination module adapted to determine an inventory cost based on a product production cost and the gross material plan.

5. The system of claim 1, further comprising an individual product price determination module adapted to determine an individual product price based on a product production cost and the gross material plan.

6. The system of claim 1, further comprising:

- an annual average determination module adapted to determine an annual average as a fraction of the gross material plan;
- a quantity variability determination module adapted to determine a quantity variability as a fraction of the annual average;
- a staggered production amount determination module adapted to determine a staggered production amount based on the gross material plan, the quantity variability, and a product minimum quantity; and
- a staggered production cost determination module adapted to determine a staggered production cost based on the staggered production amount, the gross material plan, and a product production cost.

7. The system of claim 1, further comprising a roll out set up cost determination module adapted to determine a roll out set up cost based on a product minimum quantity, the gross material plan, and an estimated set up cost.

8. The system of claim 1, further comprising a releasing plan development module adapted to determine the releasing plan by assuming a volume based on the gross material plan and a fraction of the predetermined amount of time.

9. The system of claim 1, further comprising a customer quote development module adapted to develop the customer quote based on a staggered material cost determined as a function of the gross material plan.

10. The system of claim 1, further comprising an income statement development module adapted to develop the income statement.

11. An inventory forecasting system, comprising:
an input receptive of a product total and a probability of product failure over a predetermined amount of time;
a gross material plan determination module adapted to determine a gross material plan for a lifetime based on the product total and the probability of product failure; and
a product cost determination module adapted to determine a product cost based on the gross material plan.

12. The system of claim 11, further comprising a staggered production cost determination module adapted to determine a staggered production cost based on the gross material plan, a product production cost, and a product minimum quantity.

13. The system of claim 11, further comprising a roll out set up cost determination module adapted to determine a roll out set up cost based on the gross material plan, a product minimum quantity, and an estimated set up cost.

14. The system of claim 11, further comprising a storage, freight, labor, and packaging costs determination module adapted to determine product storage, freight, labor, and packaging costs based on the gross material plan, product characteristics relating to storage, freight, labor, and packaging requirements, and related costs.

15. The system of claim 11, wherein said product cost determination module is adapted to determine the product cost based on a staggered production cost, a roll out set up cost, and product storage, freight, labor, and packaging costs.

16. The system of claim 11, further comprising a product price determination module adapted to determine an individual product price based on the product cost and a profit margin.

17. The system of claim 11, further comprising a datastore recording statistically averaged probabilities of product failure over a service term.

18. The system of claim 11, further comprising a releasing plan development module adapted to determine a releasing plan by assuming a volume based on the gross material plan and a fraction of the predetermined amount of time.

19. The system of claim 11, further comprising a customer quote development module adapted to develop a customer quote based on a staggered material cost determined as a function of the gross material plan.

20. The system of claim 11, further comprising an income statement development module adapted to develop an income statement based on the individual product price and a product volume determined as a function of the gross material plan.

21. An inventory forecasting method, comprising:
- receiving a product total and a probability of product failure over a predetermined amount of time;
 - determining a gross material plan for a lifetime based on the product total and the probability of product failure; and
 - employing the gross material plan to develop at least one of:
 - (a) a releasing plan adapted to accomplish automatic release of products to a supply base based on volume assumptions determined as a function of the gross material plan;
 - (b) a customer quote based on an individual product price determined as a function of the gross material plan; and
 - (c) an income statement based on the individual product price and an estimated product volume determined as a function of the gross material plan.

22. The method of claim 21, further comprising:
- developing an actuarial table recording statistically averaged probabilities of product failure over the predetermined amount of time; and
 - organizing the table according to at least one of product composition, product location, product sub-system, and product function.

23. The method of claim 21, further comprising:

breaking historical data, crash data, and material shelf life data down into data points based on product categories including at least one of product composition, product location, product sub-system, and product function;

analyzing the data points to determine a statistical average a product of the categories will fail over a product service term;

developing at least one actuarial table recording statistically averaged probabilities of product failure;

developing a releasing plan based on the statistically averaged probabilities;

releasing products according to the releasing plan;

tracking anomalies corresponding to deviations from expected results of releasing products according to the releasing plan; and

employing the tracked anomalies as feedback in an actuarial table development and correction process.

24. The method of claim 21, further comprising determining an inventory cost based on a product production cost and the gross material plan.

25. The method of claim 21, further comprising determining an individual product price based on a product production cost and the gross material plan.

26. The method of claim 21, further comprising:

- determining an annual average as a fraction of the gross material plan;
- determining a quantity variability as a fraction of the annual average;
- determining a staggered production amount based on the quantity variability and a product minimum quantity; and
- determining a staggered production cost based on the staggered production amount, the gross material plan, and a product production cost.

27. The method of claim 21, further comprising determining a roll out set up cost based on a product minimum quantity, the gross material plan, and an estimated set up cost.

28. The method of claim 21, further comprising determining the releasing plan by assuming a volume based on the gross material plan and a fraction of the predetermined amount of time.

29. The method of claim 21, further comprising developing the customer quote based on a staggered material cost determined as a function of the gross material plan.

30. The method of claim 1, further comprising developing the income statement.

31. An inventory forecasting method, comprising:
receiving a product total and a probability of product failure over a predetermined amount of time;
determining a gross material plan for a lifetime based on the product total and the probability of product failure; and
determining a product cost based on the gross material plan.

32. The method of claim 31, further comprising determining a staggered production cost based on the gross material plan, a product production cost, and a product minimum quantity.

33. The method of claim 31, further comprising determining a roll out set up cost based on the gross material plan, a product minimum quantity, and an estimated set up cost.

34. The method of claim 31, further comprising determining product storage, freight, labor, and packaging costs based on the gross material plan, product characteristics relating to storage, freight, labor, and packaging requirements, and related costs.

35. The method of claim 31, further comprising determining the product cost based on a staggered production cost, a roll out set up cost, and product storage, freight, labor, and packaging costs.

36. The method of claim 31, further comprising determining an individual product price based on the product cost and a profit margin.

37. The method of claim 31, further comprising recording statistically averaged probabilities of product failure over a service term.

38. The method of claim 31, further comprising determining a releasing plan by assuming a volume based on the gross material plan and a fraction of the predetermined amount of time.

39. The method of claim 31, further comprising developing a customer quote based on a staggered material cost determined as a function of the gross material plan.

40. The method of claim 31, further comprising developing an income statement based on the individual product price and a product volume determined as a function of the gross material plan.

41. An inventory forecasting method, comprising:

breaking at least one of historical data, crash data, and material shelf life data down into data points based on product categories including at least one of product composition, product location, product sub-system, and product function;

analyzing the data points to determine a statistical average a product of the categories will fail over a product service term;

developing at least one actuarial table recording statistically averaged probabilities of product failure.

42. The method of claim 41, further comprising developing a releasing plan based on the statistically averaged probabilities.

43. The method of claim 42, further comprising releasing products according to the releasing plan.

44. The method of claim 42, further comprising tracking anomalies corresponding to deviations from expected results of releasing products according to the releasing plan.

45. The method of claim 42, employing tracked anomalies in results of releasing products according to the releasing plan as feedback in an actuarial table development and correction process.

46. An automotive vehicle part inventory forecasting method, comprising:

accessing an actuarial table populated with statistically averaged probabilities of automotive vehicle part failure over a predetermined period of time;

receiving a total number relating to an automotive vehicle part under service during a service term; and

generating a gross material plan based on the total number and a statistically averaged probability of failure relating to the automotive vehicle part under service, wherein the gross material plan specifies a likely number of required replacement parts during at least one of the service term and a portion thereof.

47. The method of claim 46, further comprising determining an individual replacement part price as a function of the gross material plan.

48. The method of claim 47, further comprising determining at least one of a customer quote and an income statement based on the individual product price and an estimated product volume determined as a function of the gross material plan.

49. The method of claim 46, further comprising feeding the gross material plan into a releasing plan adapted to accomplish automatic release of replacement automotive vehicle parts to a supply base in accordance with the gross material plan.

50. The method of claim 46, further comprising accessing the table based on automotive vehicle part composition, location of the automotive vehicle part on the automotive vehicle, membership of the automotive vehicle part in an automotive vehicle part sub-system, and a function of the automotive vehicle part in a context of the automotive vehicle.